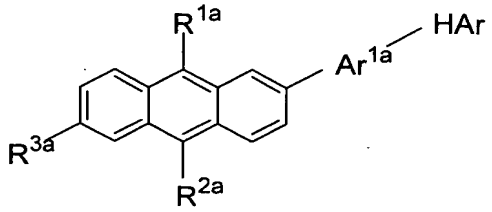
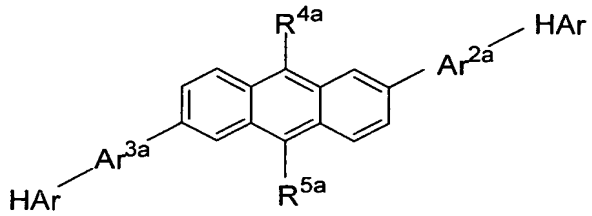
CLAIMS

[1] A derivative of heterocyclic compound having a nitrogen atom represented by the following general formula (A-1) or (A-2):

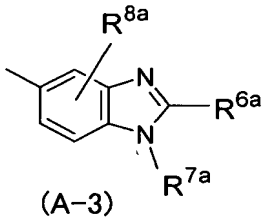



(A-1)

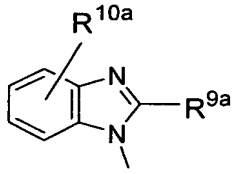



(A-2)

wherein $R^{1a}$ to $R^{5a}$ each represent a substituent, $Ar^{1a}$ to $Ar^{3a}$ each represent a single bond or a divalent connecting group, and HAr represents a group represented by the following general formula (A-3) or (A-4):




(A-3)

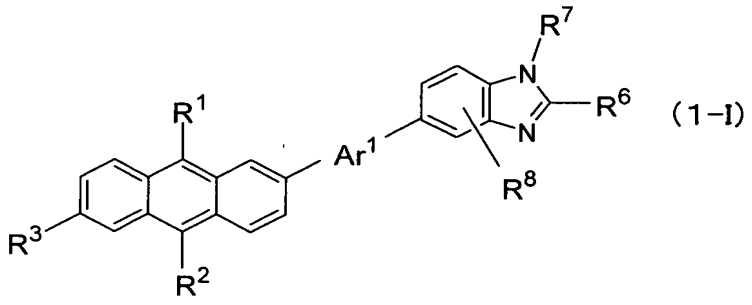



(A-4)

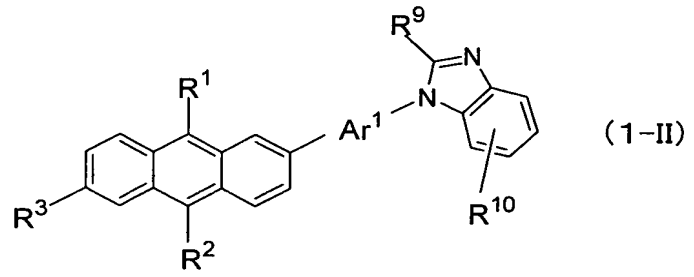
wherein $R^{6a}$ to $R^{10a}$ each represent a substituent.

[2] A derivative of heterocyclic compound having a nitrogen atom according to claim 1, wherein the derivative of heterocyclic

compound having a nitrogen atom represented by the general formula (A-1) is represented by the following general formula (1-I) or (1-II):



(1-I)

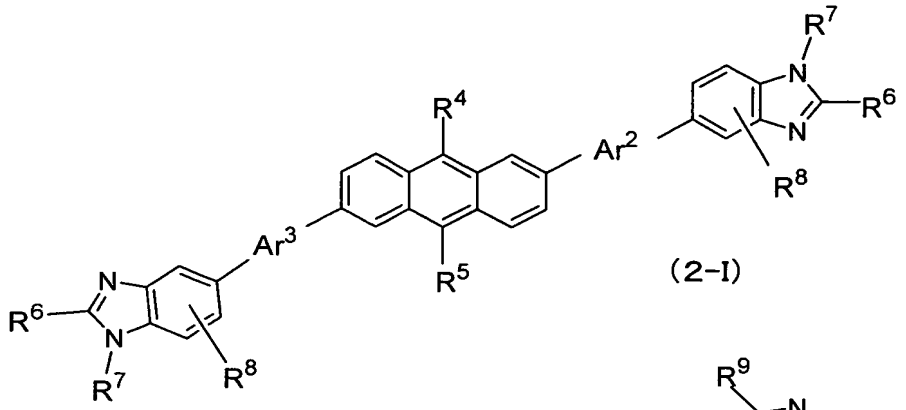


(1-II)

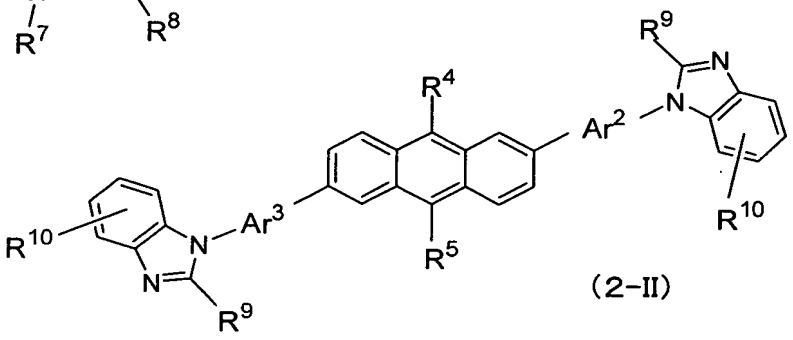
wherein $R^1$ and $R^2$ each independently represent any one selected from a group consisting of a hydrogen atom, a halogen atom, a substituted or unsubstituted aliphatic hydrocarbon group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group; provided that $R^1$ and $R^2$ cannot simultaneously represent hydrogen atoms; $R^3$ represents any one selected from a group consisting of a hydrogen atom, a halogen atom, a substituted or unsubstituted aliphatic hydrocarbon group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group; $R^6$ and $R^9$ each represent any one selected from a group consisting of a hydrogen atom, a halogen atom, a substituted or unsubstituted aliphatic

hydrocarbon group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group; $R^7$ represents any one selected from a group consisting of a hydrogen atom, a substituted or unsubstituted aliphatic hydrocarbon group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group; $R^8$ and $R^{10}$ each represent any one selected from a group consisting of a hydrogen atom, a halogen atom, a substituted or unsubstituted aliphatic hydrocarbon group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group; and $Ar^1$ represents a group selected from a substituted or unsubstituted arylene group, a substituted or unsubstituted heteroarylene group, and a substituted or unsubstituted divalent aliphatic hydrocarbon group.

[3] A derivative of heterocyclic compound having a nitrogen atom according to claim 1, wherein the derivative of heterocyclic compound having a nitrogen atom represented by the general formula (A-2) is represented by the following general formula (2-I) or (2-II):



(2-I)

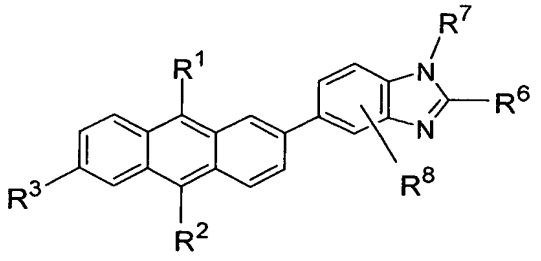


(2-II)

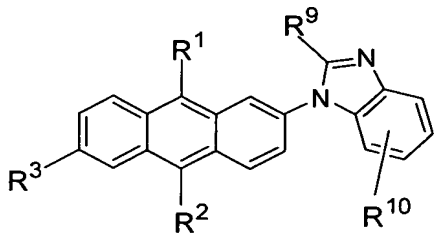
wherein $R^4$ and $R^5$ each independently represent any one selected from a group consisting of a hydrogen atom, a halogen atom, a substituted or unsubstituted aliphatic hydrocarbon group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group; provided that $R^4$ and $R^5$ cannot simultaneously represent hydrogen atoms; $R^6$ and $R^9$ each represent any one selected from a group consisting of a hydrogen atom, a halogen atom, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group; $R^7$ represents any one selected from a group consisting of a hydrogen atom, a substituted or unsubstituted aliphatic hydrocarbon group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group; $R^8$ and

$R^{10}$ each represent any one selected from a group consisting of a hydrogen atom, a halogen atom, a substituted or unsubstituted aliphatic hydrocarbon group, a substituted or unsubstituted aliphatic hydrocarbon group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group; and $Ar^2$ and $Ar^3$ each independently represent a group selected from a substituted or unsubstituted arylene group, a substituted or unsubstituted heteroarylene group, and a substituted or unsubstituted divalent aliphatic hydrocarbon group.

[4] A derivative of heterocyclic compound having a nitrogen atom according to claim 1, wherein the derivative of heterocyclic compound having a nitrogen atom represented by the general formula (A-1) is represented by the following general formula (3-I) or (3-II):




(3-I)



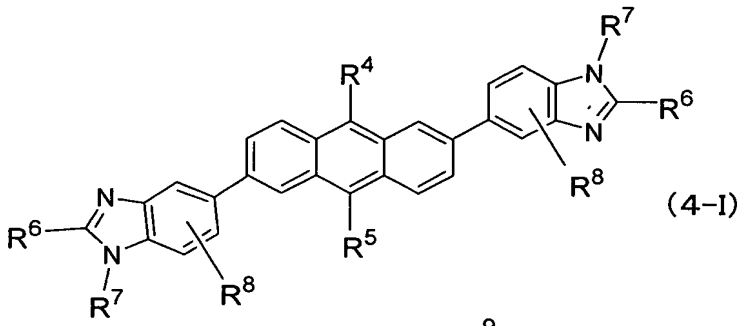

(3-II)

wherein $R^1$ and $R^2$ each independently represent any one selected from

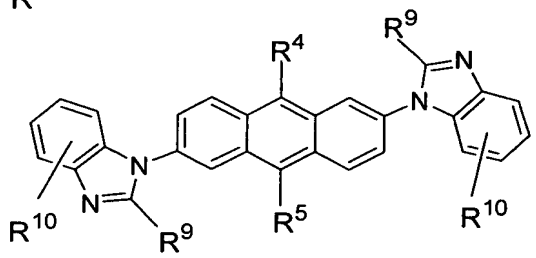
a group consisting of a hydrogen atom, a halogen atom, a substituted or unsubstituted aliphatic hydrocarbon group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group; provided that $R^1$ and $R^2$ cannot simultaneously represent hydrogen atoms; $R^3$ represents any one selected from a group consisting of a hydrogen atom, a halogen atom, a substituted or unsubstituted aliphatic hydrocarbon group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group; $R^6$ and $R^9$ each represent any one selected from a group consisting of a hydrogen atom, a halogen atom, a substituted or unsubstituted aliphatic hydrocarbon group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group; $R^7$ represents any one selected from a group consisting of a hydrogen atom, a substituted or unsubstituted aliphatic hydrocarbon group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group; $R^8$ and $R^{10}$ each represent any one selected from a group consisting of a hydrogen atom, a halogen atom, a substituted or unsubstituted aliphatic hydrocarbon group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group.

[5] A derivative of heterocyclic compound having a nitrogen atom according to claim 1, wherein the derivative of heterocyclic

compound having a nitrogen atom represented by the general formula (A-2) is represented by the following general formula (4-I) or (4-II):



(4-I)

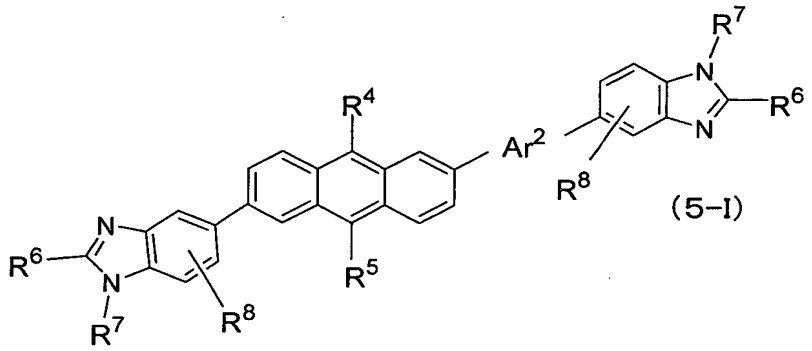


(4-II)

wherein $R^4$ and $R^5$ each independently represent any one selected from a group consisting of a hydrogen atom, a halogen atom, a substituted or unsubstituted aliphatic hydrocarbon group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group; provided that $R^4$ and $R^5$ cannot simultaneously represent hydrogen atoms; $R^6$ and $R^9$ each represent any one selected from a group consisting of a hydrogen atom, a halogen atom, a substituted or unsubstituted aliphatic hydrocarbon group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group; $R^7$ represents any one selected from a group consisting of a hydrogen atom, a substituted or unsubstituted aliphatic hydrocarbon group, a substituted or unsubstituted aryl

group, and a substituted or unsubstituted heteroaryl group; $R^8$ and $R^{10}$ each represent any one selected from a group consisting of a hydrogen atom, a halogen atom, a substituted or unsubstituted aliphatic hydrocarbon group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group.

[6] A derivative of heterocyclic compound having a nitrogen atom according to claim 1, wherein the derivative of heterocyclic compound having a nitrogen atom represented by the general formula (A-2) is represented by the following general formula (5-I) or (5-II):




wherein $R^4$ and $R^5$ each independently represent any one selected from a group consisting of a hydrogen atom, a halogen atom, a substituted

or unsubstituted aliphatic hydrocarbon group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group; provided that $R^4$ and $R^5$ cannot simultaneously represent hydrogen atoms; $R^6$ and $R^9$ each represent any one selected from a group consisting of a hydrogen atom, a halogen atom, a substituted or unsubstituted aliphatic hydrocarbon group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group; $R^7$ represents any one selected from a group consisting of a hydrogen atom, a substituted or unsubstituted aliphatic hydrocarbon group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group; $R^6$ and $R^{10}$ each represent any one selected from a group consisting of a hydrogen atom, a halogen atom, a substituted or unsubstituted aliphatic hydrocarbon group, a substituted or unsubstituted alkoxy group, a substituted or unsubstituted aryl group, and a substituted or unsubstituted heteroaryl group; and

$Ar^2$ represents a group selected from a substituted or unsubstituted arylene group, a substituted or unsubstituted heteroarylene group, and a substituted or unsubstituted divalent aliphatic hydrocarbon group.

[7] A derivative of heterocyclic compound having a nitrogen atom according to claim 1, wherein $R^{7a}$ in the general formula (A-3) represents a substituted or unsubstituted aliphatic hydrocarbon

group, or $Ar^{1a}$ to $Ar^{3a}$ in the general formulae (A-1) and (A-2) each represent a substituted or unsubstituted divalent aliphatic hydrocarbon group.

[8] A derivative of heterocyclic compound having a nitrogen atom according to any one of claims 2 to 6, wherein $R^7$ in the general formula (1-I), (2-I), (3-I), (4-I), or (5-I) represents a substituted or unsubstituted aliphatic hydrocarbon group, or $Ar^1$ to $Ar^3$ in the general formula (1-I), (2-I), (3-I), (4-I), or (5-I) each represent a substituted or unsubstituted divalent aliphatic hydrocarbon group.

[9] A derivative of heterocyclic compound having a nitrogen atom according to any one of claims 2 to 6, wherein $Ar^1$ to $Ar^3$ in the general formula (1-II), (2-II), (3-II), (4-II), or (5-II) each represent a substituted or unsubstituted divalent aliphatic hydrocarbon group.

[10] An organic electroluminescence device comprising:

a cathode;

an anode; and

one or more organic thin-film layers sandwiched between the two electrodes and having at least a light-emitting layer, wherein at least one layer among the organic thin-film layers comprises the derivative of heterocyclic compound having a nitrogen atom

according to any one of claims 1 to 9.

[11] An organic electroluminescence device according to claim 10, which comprises the derivative of heterocyclic compound having a nitrogen atom mainly in a light-emitting domain.

[12] An organic electroluminescence device according to claims 10 or 11, which comprises the derivative of heterocyclic compound having a nitrogen atom mainly in a light-emitting layer.

[13] An organic electroluminescence device according to claim 10, wherein:

the organic thin-film layer comprises at least one of an electron-injecting layer or an electron-transporting layer; and

the derivative of heterocyclic compound having a nitrogen atom comprises at least one of a material for the electron-injecting layer or a material for the electron-transporting layer.

[14] An organic electroluminescence device according to claim 13, wherein at least one of the electron-injecting layer or the electron-transporting layer contains a reductive dopant.

[15] An organic electroluminescence device according to claim 14, wherein the reductive dopant comprises one or more kinds of

substances selected from the group consisting of an alkali metal, an alkali earth metal, a rare earth metal, an oxide of an alkali metal, a halide of an alkali metal, an oxide of an alkali earth metal, a halide of an alkali earth metal, an oxide of a rare earth metal, a halide of a rare earth metal, an organic complex of an alkali metal, an organic complex of an alkali earth metal, and an organic complex of a rare earth metal.